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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,169	12/05/2003	James R. Lundberg	CNTR.2117	2869
23669	7590	05/02/2005	EXAMINER	
HUFFMAN LAW GROUP, P.C. 1832 N. CASCADE AVE. COLORADO SPRINGS, CO 80907-7449			CHANG, DANIEL D	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/730,169	Applicant(s) LUNDBERG, JAMES R.	
	Examiner Daniel D. Chang	Art Unit 2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-8, 10, 11 and 13-21 is/are rejected.
 7) ☒ Claim(s) 9 and 12 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 06 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/6/03</u> . | 6) <input type="checkbox"/> Other: _____ |

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “clock signal” recited in claims 6, 16, and 19 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: at the bottom of the page 1, Serial Numbers are missing. Appropriate correction is required.

Claim Objections

Claims 4 and 5 are objected to because of the following informalities: Claim 4, lines 4-5 recites the limitation "the reference device"; and Claim 5, lines 1-2 recites the limitation "the reference value". There is insufficient antecedent basis for these limitations. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-11, and 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Vishwanthaiah et al. (US 5,955,894, hereinafter Vishwanthaiah).

Regarding claim 1, Vishwanthaiah discloses, at least in Figs. 2 and 5, an impedance controller that controls termination impedance of at least one output based on a reference value, comprising:

a programmable reference impedance generator (522 in Fig. 5) that develops a reference impedance controlled by a reference impedance control input (output of 506);

at least one termination logic element (202 in Fig. 2), each including a programmable termination impedance generator (212 in Fig. 2) coupled to a corresponding output (OUT) and controlled by termination impedance control input (CNT BIT1-8 in Fig. 5); and

Art Unit: 2819

an impedance matching controller (508, 506, 540, 510) that continually adjusts said reference impedance control input match said reference impedance with the reference value within a predetermined tolerance and that generates said termination impedance control input based on said reference impedance control input.

Regarding claim 2, Vishwanthaiah discloses, at least in Figs. 2 and 5, said programmable reference impedance generator and each of said at least one programmable termination impedance generator comprises a binary array of matched P-channel devices (522, 212; col. 8, lines 47+; col. 9, lines 10+).

Regarding claim 3, Vishwanthaiah discloses, at least in Figs. 2 and 5, said programmable reference impedance generator and each of said at least one programmable termination impedance generator each provide a pull-up impedance relative to a source voltage (522, 212; col. 8, lines 47+; col. 9, lines 10+).

Regarding claim 4, Vishwanthaiah discloses, at least in Figs. 2 and 5, said impedance matching controller comprises:

a voltage sensor (508) that senses a voltage difference between a reference voltage developed across the reference device and a voltage of said programmable reference impedance generator and that asserts an error signal indicative thereof; and

impedance control logic (506) that adjusts said reference impedance control input based on said error signal.

Regarding claim 5, Vishwanthaiah discloses, at least in Figs. 2 and 5, the reference value comprises a reference resistor (50 OHM OFF CHIP), wherein a voltage source is applied across said reference resistor and said programmable reference impedance generator coupled in series

Art Unit: 2819

(see 50 OHM OFF CHIP and 522) at an intermediate junction, and wherein said voltage sensor asserts said error signal indicative of voltage said intermediate junction relative one-half voltage level ($V_{DDO}/2$) of said voltage source.

Regarding claim 6, Vishwanthaiah discloses, at least in Figs. 2 and 5, said impedance control logic receives a clock signal (SYSTEM CLOCK) and increments or decrements (LEFT/RIGHT) said reference impedance control input during selected cycles of said clock signal.

Regarding claim 7, Vishwanthaiah discloses, at least in Figs. 2 and 5, said impedance matching controller further comprises bias adjustment logic (540) that combines a bias amount with said reference impedance control input to provide said termination impedance control input.

Regarding claim 8, Vishwanthaiah discloses, at least in Figs. 2 and 5, output bias logic (510) that is programmed to provide said bias amount.

Claims 10, 11, and 13-21 are essentially the same in scope as apparatus claims 1-8 and are rejected similarly.

Allowable Subject Matter

Claims 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

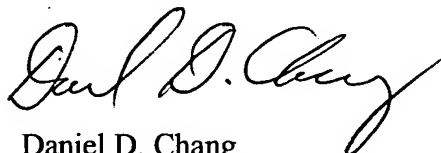
Conclusion

Art Unit: 2819

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel D. Chang
Primary Examiner
Art Unit 2819

dc

**DANIEL CHANG
PRIMARY EXAMINER**